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# Resolving the evolutionary history of New Guinea crowned pigeons and its implication for taxonomy and conservation

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## Abstract

In New Guinea, many bird lineages that diversified share a striking distribution pattern across species and sub-species, with a high segregating role of the central range but also with clear separations in the lowlands which do not correspond to any obvious geographic barrier. To explore the processes that may underlie this pattern, we investigated phylogenetic relationships within New Guinea crowned pigeons, a lineage suspected to contain more species than currently recognized and that has long been an icon for conservation. We used 42 specimens from as many locations as possible, and shotgun DNA sequencing to reconstruct whole mitochondrial genome and to recover some partial nuclear sequences. Phylogenetic hypotheses were generated using maximum likelihood and Bayesian tree reconstruction methods. Our study confirms that crowned pigeons are a complex of four different species rather than three. We discuss the implications of this result concerning the processes that may have shaped bird diversification within New Guinea and also elaborate about the consequences of taxonomic changes on conservation strategies aimed at crowned pigeons.

**Keywords:** New Guinea crowned pigeons, evolution, phylogeny, biogeography, taxonomy, conservation

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